AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) A method for generating an atmospheric pressure glow discharge plasma (APG), wherein a plurality of electrodes are arranged defining a discharge space for forming said plasma, wherein said electrodes are connected to a power supply and an AC-voltage is applied to said electrodes, and wherein a gaseous substance is provided in said discharge space, wherein said AC-voltage applied to said electrodes has an amplitude equal to at least the breakdown voltage of said gaseous substance and has a frequency of at least [[50]] 100 kHz, and said gaseous substance ~~essentially~~ comprises at least one of a group comprising argon, nitrogen and air and wherein the amplitude of the AC-voltage is controlled to be dependent upon the breakdown voltage of the gaseous substance to maintain their relationship to thereby control and reduce the temperature applied to the substrate for preventing thermal damage to the substrate.

2. (Previously Presented) The method according to claim 1, wherein said AC-voltage amplitude is less than or equal to approximately140% of said breakdown voltage.

3. (Previously Presented) The method according to claim 2, wherein said AC-voltage amplitude is between110% and 120% of said breakdown voltage.

4. (Previously Presented) The method according to claim 1, wherein the temperature of said gaseous substance is lower than100 C.

5. (Previously Presented) The method according to claim 1, wherein at least one further gas is provided to said gaseous substance in said discharge space.

6. (Currently amended) The method according to claim 5, comprising at least the steps of: providing said further gas to said discharge space after essentially ~~stabilising~~ stabilizing said plasma such that the concentration of said further gas is fractionally increased stepwise; and stabilizing said plasma by adjusting said AC-voltage after each stepwise

increment of said concentration of said further gas.

7. (Previously Presented) The method according to claim 1, wherein said at least one further gas is provided to said gaseous substance in a concentration of at most 50% by volume.

8. (Previously Presented) The method according to claim 7, wherein said concentration is at most 20% by volume.

9. (Previously Presented) The method according to claim 5, wherein said at least one further gas provided to said gaseous substance in said discharge space is comprised of at least one of a group of O_2, $C0_2$, NH_3, common precursor gasses such as SiH_4, hydrocarbons, organosilicons such as TEOS and HMDSO, or organo-metallics and combinations thereof.

10. (Previously Presented) The method according to claim 9, wherein said gaseous substance provided in said discharge space is flowed through said discharge space, establishing a gas flow.

11. (Previously Presented) The method according to claim 10, wherein said gas flow has a flow rate in a range of 1 l/min to 50 l/min.

12. (Previously Presented) The method according to claim 10, wherein the velocity of the gas flow is in the range of 0.1-10 m/s.

13. (Previously Presented) The method according to claim 12, wherein the velocity of the gas flow is in the range of 1-5 m/s.

14. (Previously Presented) The method according to claim 1, wherein said AC-voltage is chosen to comprise a frequency less than 1 MHz.

15. (Previously Presented) The method according to claim 14, wherein said

frequency of the AC-voltage is chosen within a range of 100 kHz to 700 kHz.

16. (Currently amended) The method according to claim 1, wherein a residence time for treating a thermoplastic polymer film in said discharge space is chosen such that said thermoplastic polymer film is kept at a temperature below a ~~said~~ glass transition temperature of a thermoplastic polymer film.

17. (Previously Presented) The method according to claim 16, wherein said residence time is controlled by moving said film through said thermoplastic polymer discharge space while controlling the velocity of said thermoplastic polymer film.

18. (Previously Presented) The method according to claim 16, wherein the amplitude of said AC-voltage is chosen such that the temperature of the discharge space remains below a glass transition temperature of said thermoplastic polymer film during treatment of said thermoplastic polymer film and for maintaining said glow plasma.

19. (Previously Presented) The method according to claim 16, wherein said thermoplastic polymer film comprises at least one of a group comprising triacetyl cellulose(TAC), polyethyleneterephthalate (PET), polyethylene- naphthalate (PEN) and similar thermoplastic polymers.

20. (Previously Presented) The method according to claim 1 wherein at least one of said electrodes is covered with a film of dielectric material.

21. (Previously Presented) The method according to claim 20, wherein said film of dielectric material is chosen comprising a thickness in a range of 1 μm to 1000 μm.

22. (Previously Presented) The method according to claim 21, wherein said thickness lies within a range of 250μm to500 μm.

23. (Previously Presented) The method according to claim 1, wherein at least two

of said electrodes are spaced apart from each other over a distance within a range of 100 μm to 5000 μm.

24. (Previously Presented) The method according to claim 23, wherein said distance is chosen within a range of 250 μm to 1500 μm.

25. (Previously Presented) The method according to claim 1, wherein a voltage rise time defines a shortest time interval for said AC-voltage to reach its maximum value starting from zero, and wherein said voltage rise time of the AC-voltage is in the range of 0.1 to 10 kV/μs.

26. (Previously Presented) The method according to claim 1, wherein current density through said plasma is less than 10 mA/cm^2.

27. (Currently amended) The method according claim 1, used for treating a substrate in said discharge space with a chemical ~~vapour~~ <u>vapor</u> deposition process using said plasma.

28. (Currently amended) An arrangement for generating an atmospheric pressure glow discharge plasma (APG), comprising a plurality of electrodes arranged such that a discharge space is defined by said electrodes, further comprising ~~means for applying~~ an AC-voltage <u>supply</u> to said electrodes, and ~~means for providing~~ a gaseous substance <u>supply system</u> to <u>supply a gaseous substance to</u> said discharge space, wherein said ~~means for applying an~~ AC-voltage <u>supply</u> ~~to said electrodes are arranged for applying~~ <u>applies</u> an AC-voltage <u>to said electrodes</u> having an amplitude equal to at least a breakdown voltage of said gaseous substance and having a frequency of at least [[50]] <u>100</u> kHz, and said ~~means for providing a~~ gaseous substance <u>supply system provides</u> to said discharge space ~~are arranged for essentially providing~~ at least one of a group comprising argon, nitrogen and air ~~having a temperature lower than100°C~~ <u>,wherein the amplitude of the AC-voltage supply is controlled to be dependent upon the breakdown voltage of the gaseous substance to maintain their relationship to thereby control and reduce the temperature applied to said substrate for preventing thermal damage to</u>

said substrate.

29. (Currently Amended) The arrangement according to claim 28, wherein said ~~means for applying an~~ AC-voltage supply is ~~are~~ arranged for providing an AC-voltage having amplitude up to 140% of said breakdown voltage.

30. (Currently Amended) The arrangement according to claim 28, wherein said ~~means for providing a~~ gaseous substance supply system is ~~are~~ arranged for providing at least one further gas to said gaseous substance in said discharge space.

31. (Currently Amended) The arrangement according to claim 30, wherein said ~~means for providing a~~ gaseous substance supply system is ~~are~~ further arranged for providing the at least one further gas such that the concentration of said at least one further gas is stepwise adjustable.

32. (Previously Presented) The arrangement according to claim 30, wherein said at least one further gas comprises one of a group of 0_2,CO_2,NH_3, common precursor gasses such as SiH_4, hydrocarbons, organosilicons such as TEOS and HMDSO, or organo-metallics, and combinations thereof.

33. (Previously Presented) The arrangement according to claim 28, comprising means for flowing said gaseous substance through said discharge space.

34. (Previously Presented) The arrangement according to claim 32, wherein said means for flowing said gaseous substance through said discharge space is arranged for establishing a flow with a flow rate within a range of 1l/min to 50 l/min.

35. (Previously Presented) The arrangement according to claim 34, wherein said means for flowing said gaseous substance through said discharge space is arranged for establishing a flow with a flow velocity within a range of 0.1-10 m/s.

36. (Currently Amended) The arrangement according to claim 28, wherein said ~~means for applying a high frequency~~ AC-voltage supply is arranged for applying a voltage at ~~comprising~~ a frequency within a range of 50 kHz to 1 MHz.

37. (Previously Presented) The arrangement according to claim 28, wherein at least one of said electrodes is arranged for supporting a thermoplastic polymer film to be treated by said plasma.

38. (Previously Presented) The arrangement according to claim 37, further comprising means arranged for moving said thermoplastic polymer film through said discharge space with a velocity for which the residence time of said thermoplastic polymer film is such that the thermoplastic polymer film is kept at a temperature below a glass transition temperature of said thermoplastic polymer film.

39. (Currently Amended) The arrangement according to claim 37, wherein said ~~means for applying an~~ AC-voltage supply is ~~are~~ arranged for providing an AC-voltage having an amplitude such that the temperature of the discharge space remains below a glass transition temperature of said thermoplastic polymer film during treatment of said thermoplastic polymer film.

40. (Previously Presented) The arrangement according to claim 28, including a film of dielectric material that is contiguous to at least one of said electrodes.

41. (Previously Presented) The arrangement according to claim 40, wherein said film of dielectric material comprises a thickness in a range of 1 μm to 1000 μm.

42. (Previously Presented) The arrangement according to claim 28, wherein said discharge space comprises a distance between said electrodes within a range of 0.1 mm to 5 mm.

43. (Previously Presented) The arrangement according to claim 28, wherein the

shortest time interval for said AC-voltage to reach its maximum value starting from zero, is performed at least in a range of 0.1 to 10 kV/μs.

44. (Previously Presented) The arrangement according to claim 28, wherein the current density through said plasma is adjustable in a range below 10 mA/cm^2.

45. (Currently amended) The arrangement according to claim 28, further including a current choke coil arranged for ~~stabilising~~ stabilizing said plasma.

46. (Currently amended) The arrangement according to claim 28, wherein a chemical ~~vapour~~ vapor deposition treatment process is performed on a substrate in said discharge space using said plasma.

47. (Previously Presented) The method according to claim 7, wherein said at least one further gas provided to said gaseous substance in said discharge space is comprised of at least one of a group of O_2, $C0_2$, NH_3, common precursor gasses such as SiH_4, hydrocarbons, organosilicons such as TEOS and HMDSO, or organo-metallics and combinations thereof.

48. (Previously Presented) The arrangement according claim 30, wherein said at least one further gas comprises one of a group of 0_2,CO_2,NH_3, common precursor gasses such as SiH_4, hydrocarbons, organosilicons such as TEOS and HMDSO, or organo-metallics, and combinations thereof.